



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,041	07/08/2003	Hiroyuki Otaki	TJK/398	3932

27717 7590 09/07/2005

SEYFARTH SHAW LLP
55 EAST MONROE STREET
SUITE 4200
CHICAGO, IL 60603-5803

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,041

Applicant(s)

OTAKI ET AL.

Examiner

Martin J. Angebrannt

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2003 and 25 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1756

1. The amendment to the specification is acceptable as it corrects a clear typographical error.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2,4,5,7,8,11,12 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kubo et al. JP 03-130211.

See example 4, which uses HDEP (upper right hand column of page 8).

5. Claims 1,2,3,7,8 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Koshobu et al. JP 2000-154351. (machine translation attached)

See the examples which use the monomer of formula I [0009, 0036]

6. Claims 1-3,7 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Mishima et al. '770.

Art Unit: 1756

See compositions in table 1, using the five perfluoroacrylates listed therein.

7. Claims 1,2,4,5,7-10,12 and 16-17 rejected under 35 U.S.C. 102(a) as being fully anticipated by Otaki et al. JP 2002-323845.

See the example 1 described in the abstract which uses 1,4-bis(2'3'epoxypropyl), perfluorobutane [0066] together with a binder (EHPE, a polyethylene) and a photoinitiator

8. Claims 1-3,7-12 and 14-17 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Sugawara et al. JP 05-273899.

Sugawara et al. JP 05-273899 see example 2, where the monomer having the formula 20 is used to improve the qualities of a volume holograms.

9. Claims 1,-3,7 and 16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kuriyama et al. JP 07-014436. (machine translation attached)

See examples 3 and 4. note [0031].

10. Claims 1,2,4,5,7,8,11,12 and 16 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Fukushima et al. JP 2003-089779.

See examples using monomer E.

11. Claims 1,2,4-8,11,12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Otaki et al. JP 2002-323845, Fukushima et al. JP 2003-089779 or Kubo et al. JP 03-130211, in view of Boutevin et al. '312 .

Boutevin et al. '312 teach that for perfluorinated alkane containing monomers, the use of an oxirane (epoxide) or an oxetane ring is functionally equivalent.

It would have been obvious to one of ordinary skill in the art to modify the compositions of either Otaki et al. JP 2002-323845, Fukushima et al. JP 2003-089779 or Kubo et al. JP 03-

Art Unit: 1756

130211 by using oxetane moieties in place of the oxirane moieties in the cited cationically polymerizable monomer with a reasonable expectation of forming a useful photopolymerizable composition.

12. Claims 1,2,4,5,7-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkuma et al '210, in view of either Otaki et al. JP 2002-323845, Fukushima et al. JP 2003-089779 or Kubo et al. JP 03-130211.

Ohkuma et al. '210 teach the use of composition containing both free radically polymerizable systems and cationically polymerizable systems. The composition include a free radical monomer, a cationically polymerizable monomer, a free radical photoinitiator, a cationic polymerization photoinitiator, a sensitizing dye and a binder. (see example 3). Useful cationically curable monomers include, but are not limited to those containing a cyclic ether group (4/67). Useful diepoxides are disclosed (5/5 in particular) Useful radically polymerizable monomers including diacrylates and dimethacrylates (3/19-51).

It would have been obvious to one skilled in the art to modify the compositions of Ohkuma et al '210 by using the fluorinated epoxides disclosed by either of Otaki et al. JP 2002-323845, Fukushima et al. JP 2003-089779 or Kubo et al. JP 03-130211 in place of the cationically curable monomers, with a reasonable expectation of forming a useful photopolymerizable system based upon the functionality of these epoxides and the similarity to the exemplified species in line 5 of column 5 of Ohkuma et al. '210.

13. Claims 1,2,4,5-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkuma et al '210, in view of either Otaki et al. JP 2002-323845, Fukushima et al. JP 2003-089779 or Kubo et al. JP 03-130211 combined with Boutevin et al. '312.

Art Unit: 1756

In addition to the basis provided above, the examiner holds that it would have been obvious to one of ordinary skill in the art to modify the compositions resulting from the combination of Ohkuma et al. '210 with either Otaki et al. JP 2002-323845, Fukushima et al. JP 2003-089779 or Kubo et al. JP 03-130211 by using oxetane moieties in place of the oxirane moieties in the cited cationically polymerizable monomer with a reasonable expectation of forming a useful photopolymerizable composition, bearing in mind the direction to all cyclic ethers by Ohkuma et al. '210.

14. Claims 1-3, 7-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkuma et al. '210, in view of Sugawara et al. JP 05-273899.

It would have been obvious to one skilled in the art to modify the compositions of Ohkuma et al. '210 by using the fluorinated acrylates disclosed by Sugawara et al. JP 05-273899 in place of the free radically curable monomers used in the examples with a reasonable expectation of forming a useful photopolymerizable system based upon the functionality of these monomers and their previous use to increase the diffraction efficiency of holograms by Sugawara et al. JP 05-273899.

15. Claims 1, 2, 4, 5, 7-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtaki et al. '163.

Ohtaki et al. '163 teaches 1,4-bis(2'3'epoxypropyl) perfluorobutane as a useful monomers as well as useful fluorinated acrylates. [0037]. The example includes a diacrylate, a diepoxide, a photopolymerization initiator and a binder. The use of various photoinitiators and sensitizing dyes are disclosed. [0064-0072]

Art Unit: 1756

It would have been obvious to one skilled in the art to modify the example by using 1,4-bis(2'3'epoxypropyl) perfluorobutane, in place of the cationically curable compound of the examples with a reasonable expectation of forming a hologram based upon the disclosure of equivalent functionality.

16. Claims 1-3,7-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. 06-019040, in view of Sugawara et al. JP 05-273899.

Maeda et al. JP 06-019040 teaches volume holograms stabilized by sol gel glass generation insitu during the hologram formation. The use of acrylates is exemplified in examples 2 (TMPTA).

It would have been obvious to one skilled in the art to modify the compositions of Maeda et al. JP 06-019040 by using the fluorinated acrylates disclosed by Sugawara et al. JP 05-273899 in place of the free radically curable monomers used in the examples with a reasonable expectation of forming a useful photopolymerizable system based upon the functionality of these monomers and their previous use to increase the diffraction efficiency of holograms by Sugawara et al. JP 05-273899.

17. Claims 1-3 and 7-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. 06-019040, in view of Sugawara et al. JP 05-273899, further in view of Otaki et al. JP 2002-236440.

Otaki et al. JP 2002-236440 teaches the use of sol gel type matrix used by Maeda et al. 06-019040 can be formed either through sol gel processing or by the use of functionalized fine metal particles. (abstract.).

Art Unit: 1756

In addition to the basis provided above, the examiner holds that it would have been obvious to modify the process resulting from the combination of Maeda et al. 06-019040 and Sugawara et al. JP 05-273899 by using another method for forming the matrix such as the use of functionalized metal particles as taught by Otaki et al. JP 2002-236440 as functionally equivalent to the sol gel process.

18. Claims 1-3, 7-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otaki et al. EP 1231511, in view of Sugawara et al. JP 05-273899 or .

Otaki et al. EP 1231511 teach the use of composition containing and organometallic sol gel processable component together with either a free radically polymerizable or cationically polymerizable system [0047-0063, 0065-0071]. These include fluorinated polymers [0070]. The composition include a free radical monomer, a free radical photoinitiator, a sensitizing dye and a the solgel material as the binder. (see example 3). Useful cationically curable monomers include, but are not limited to those containing a cyclic ether group [0068]. Useful diepoxides are disclosed [0070] Useful radically polymerizable monomers including diacrylates and dimethacrylates [0066-0067].

It would have been obvious to one skilled in the art to modify the exemplified composition of Otaki et al. EP 1231511 by using the fluorinated acrylates or epoxides disclosed by Sugawara et al. JP 05-273899 or Otaki et al. JP 2002-323845 as the free radically curable or cationically curable monomers used in the examples with a reasonable expectation of forming a useful photopolymerizable system based upon the functionality of these monomers and their previous use in forming holograms by Sugawara et al. JP 05-273899 or Otaki et al. JP 2002-323845.

Art Unit: 1756

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 1-5 and 7-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-33 of copending Application No. 10/072201 in view of Sugawara et al. JP 05-273899 or Otaki et al. JP 2002-323845.

It would have been obvious to one skilled in the art to modify the claimed composition of copending Application No. 10/072201 by using the fluorinated acrylates or epoxides disclosed by Sugawara et al. JP 05-273899 or Otaki et al. JP 2002-323845 as the free radically curable or cationically curable monomers used in the examples with a reasonable expectation of forming a useful photopolymerizable system based upon the functionality of these monomers and their previous use in forming holograms by Sugawara et al. JP 05-273899 or Otaki et al. JP 2002-323845.

This is a provisional obviousness-type double patenting rejection.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kawabata et al. '340 teach mixed photopolymerizable systems for forming holograms.

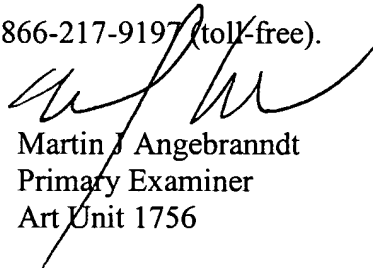
Art Unit: 1756

Kaji et al. JP 11-095431 is cumulative to those describing fluorinated acrylates.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebrannndt
Primary Examiner
Art Unit 1756

08/31/2005